
Intel
Developer
Forum
Spring 2002
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# Enterprise Computing

**Mike Fister**
Senior Vice President
General Manager
Enterprise Platforms Group

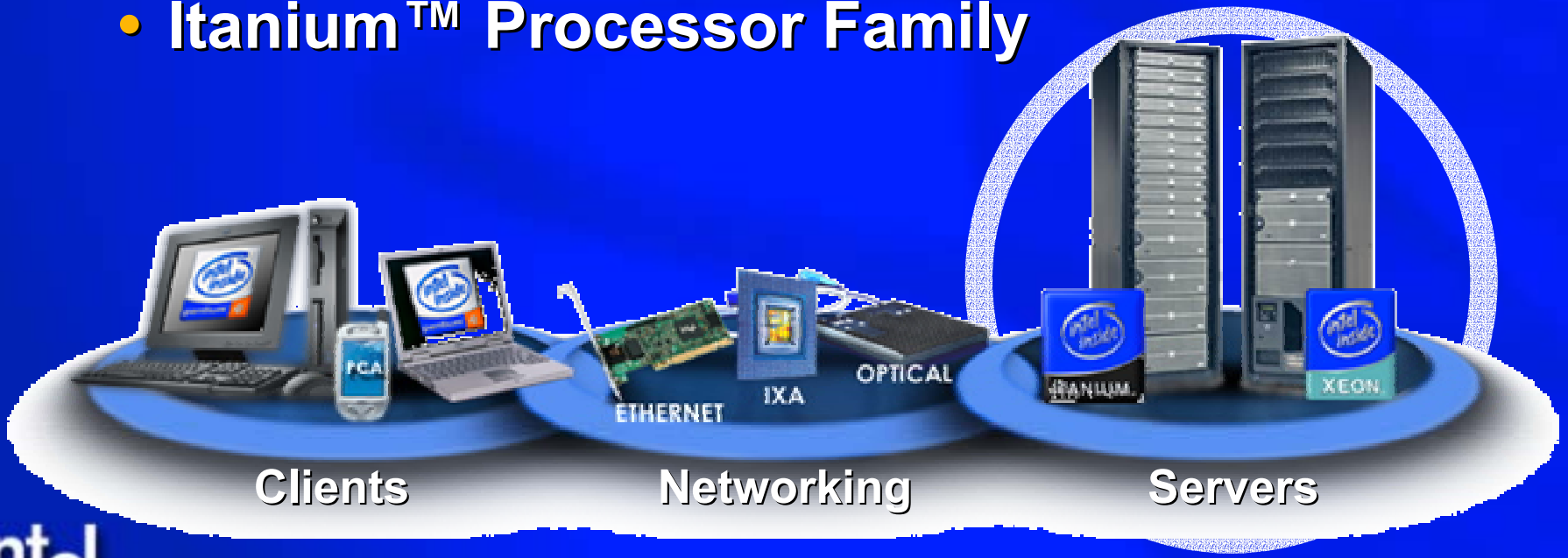
February 25, 2002

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# Outline

- Trends in Servers
- IA in Telecom
- Xeon™ Processor Family
- Itanium™ Processor Family



# Trend #1: Servers Are Segmenting



Blades & Ultra-dense



Rack-Optimized



Pedestals



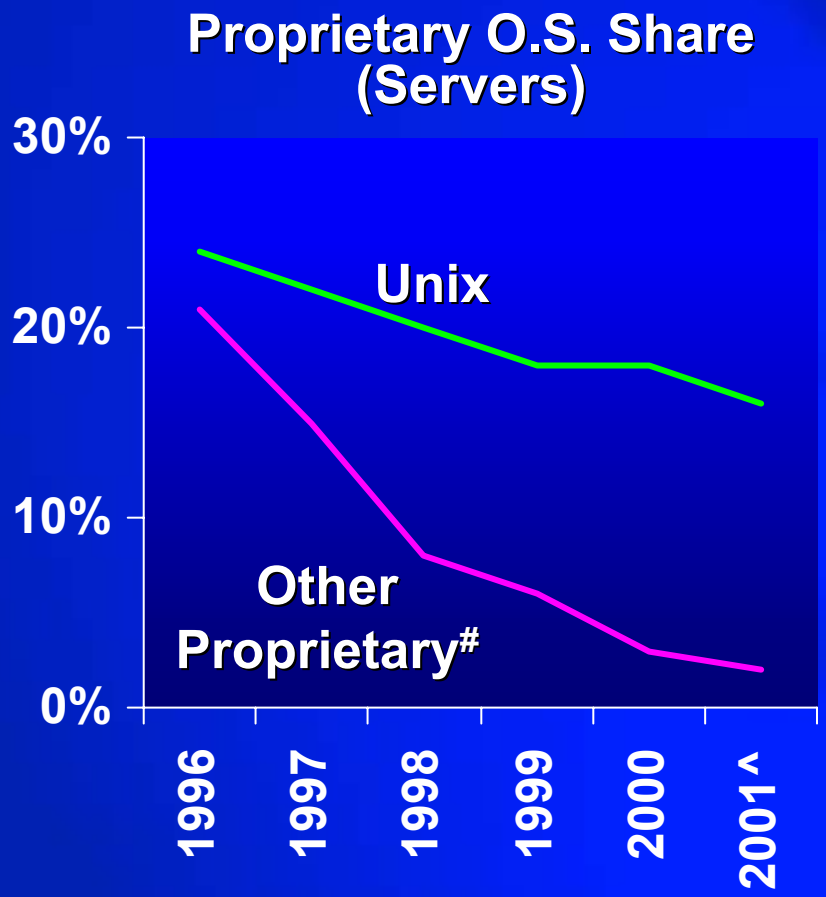
Large SMP



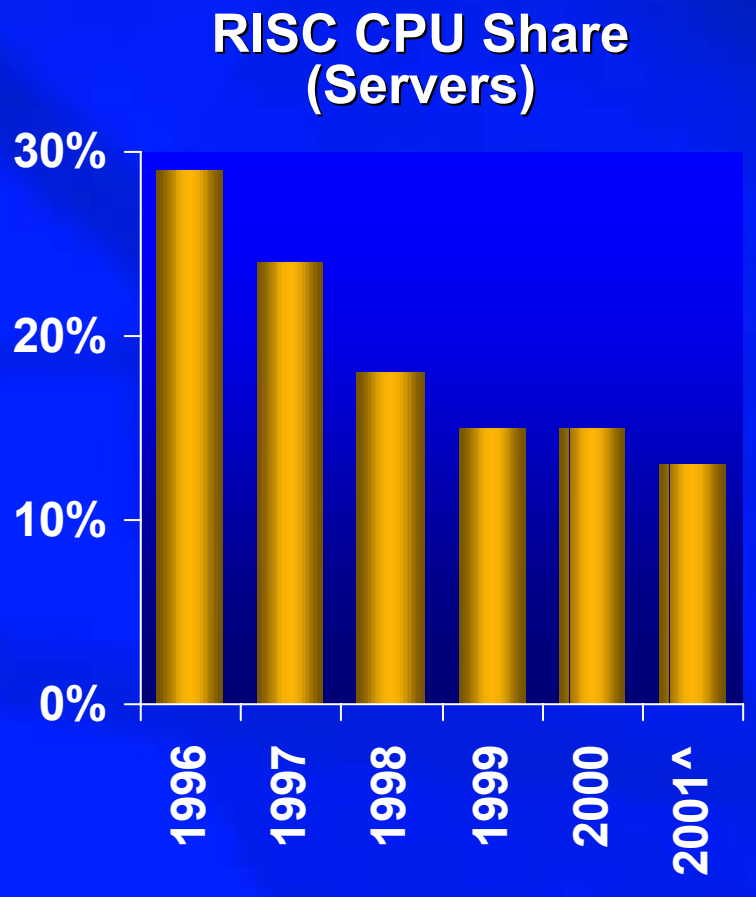
Carrier-grade

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# Trend #2: Proprietary is Declining




#Open VMS*, AS390*, AS400*




Source: IDC Q3'01 Tracker (^thru Q3)

# Trend #3: "Scale Up" by Scaling Out

## Top 10 TPC Transaction Processing Performance Council

| Rank | Company | System | tpmC | Price/tpmC | Cluster |
|---|---|---|---|---|---|
| 1 | COMPAQ | ProLiant DL760-900-256P | 709,220 | 14.96 US $ | Y |
| 2 | IBM | IBM e(logo) xSeries 370 c/s | 688,220 | 22.58 US $ | Y |
| 3 | COMPAQ | ProLiant DL760-900-192P | 567,882 | 14.04 US $ | Y |
| 4 | FUJITSU | PRIMEPOWER 2000 c/s w 66 Front-Ends | 455,818 | 28.58 US $ | N |
| 5 | IBM | IBM e(logo) xSeries 370 c/s | 440,879 | 19.35 US $ | Y |
| 6 | COMPAQ | ProLiant DL760-900-128P | 410,769 | 13.02 US $ | Y |
| 7 | hp invent | HP 9000 Superdome Enterprise Server | 389,434 | 21.24 US $ | N |
| 8 | IBM | IBM e(logo) xSeries 370 c/s | 363,129 | 21.80 US $ | Y |
| 9 | COMPAQ | Compaq AlphaServer GS320 | 230,533 | 44.62 US $ | N |
| 10 | FUJITSU | PRIMEPOWER 2000 c/s w /32 Front Ends | 222,772 | 43.42 US $ | N |

Source: tpc.org

**Clustering for performance**

**"It will be several years before the big machine dies, but inevitably the big machine will die."**
**— Larry Ellison**

**InfoWorld – January 31, 2002**

# Intel Architecture: a foundational Building Block

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# Intel-based Servers in Telecom

- Telecom facing major challenges
- Moore's Law helps
- Industry embracing Intel Architecture
  - Performs better
  - Costs less

## Intel Mounts Challenge to Sun In Telecom-Equipment Market

DOWJONES

12-12-01 05:35 AM EST

Intel Corp. (INTC) is mounting a challenge to Sun Microsystems (SUNW) Inc.'s dominant share of the market for computers for telecommunications networks.

Intel Wednesday will announce that it has begun shipping the guts of telecom servers, computers that direct telephone calls and computer traffic across networks. The Santa Clara, Calif., semiconductor maker says the computers have met rigorous tests for telecom equipment, including the ability to survive extreme heat and cold, earthquakes and fires.





Wall Street Journal - 12/12/01

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Video

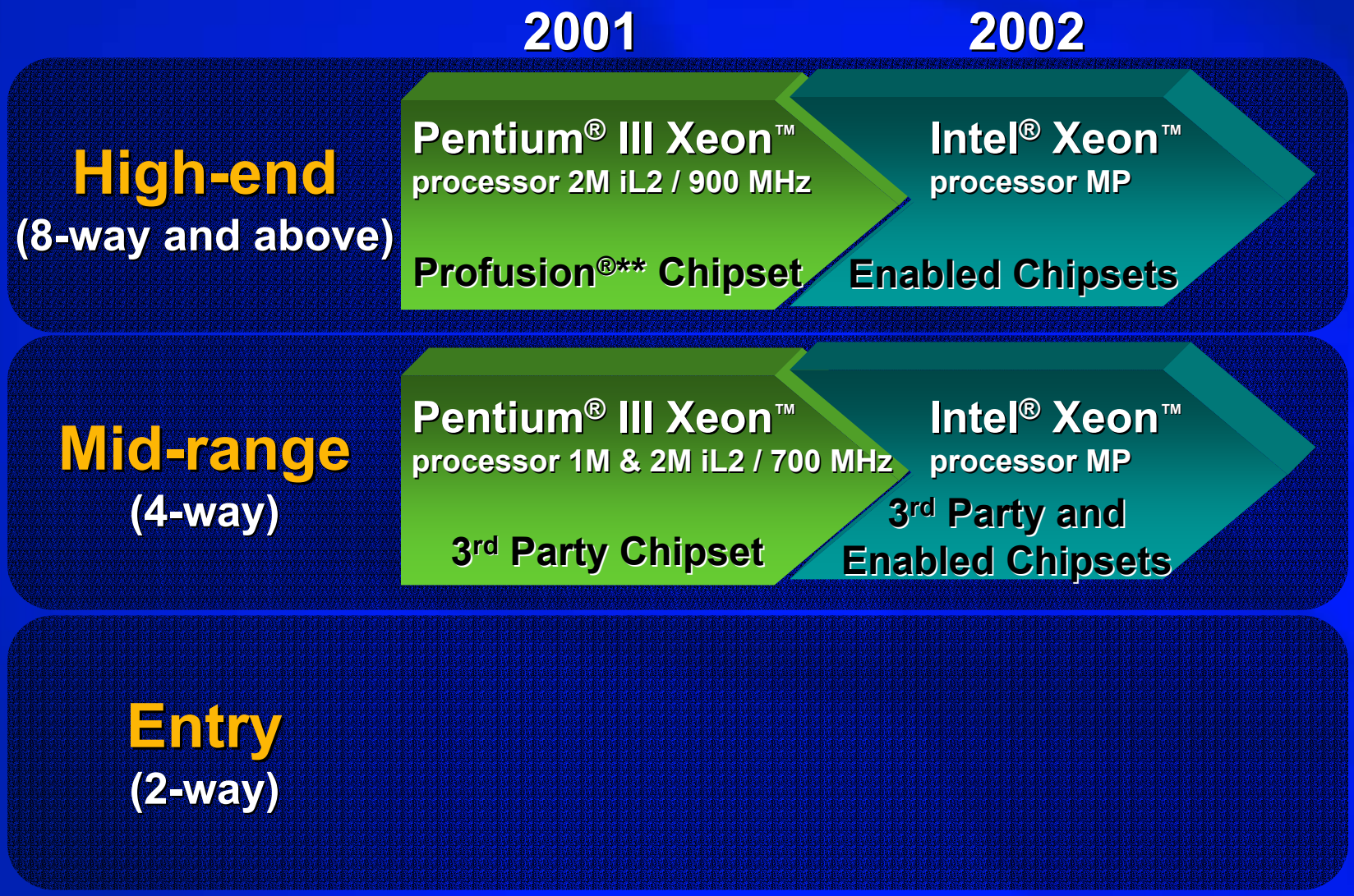
# Voice Portal on Intel-based Servers



# Voice Portal on Intel-based Servers



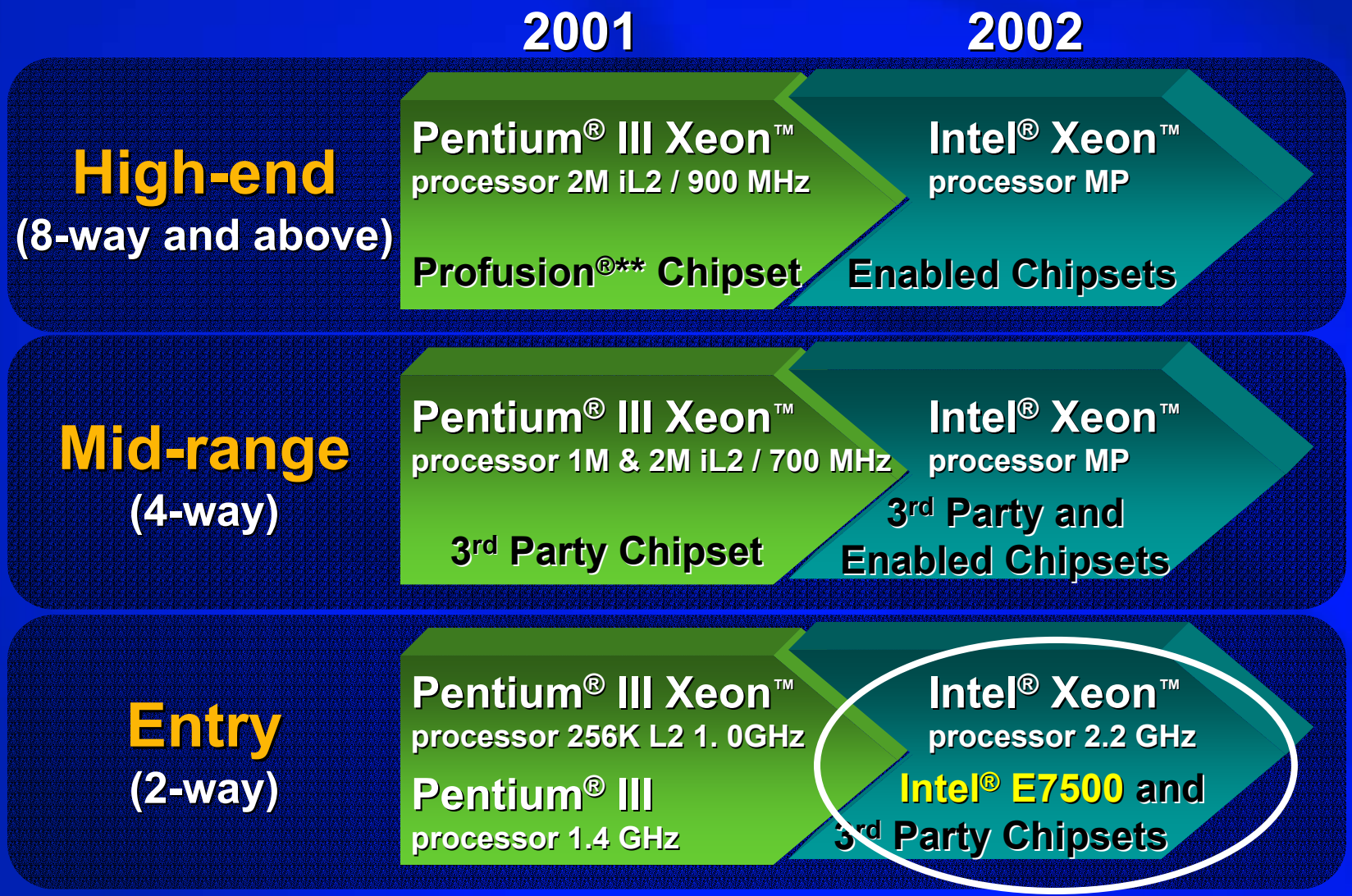
# Xeon™ Processor Family Transitions




Products and dates shown for planning purposes only and are subject to change

** Profusion™ is a registered trademark in the U.S. and trademark elsewhere, of Corollary, Inc., a wholly owned subsidiary of Intel

# Xeon™ Processor Family Transitions



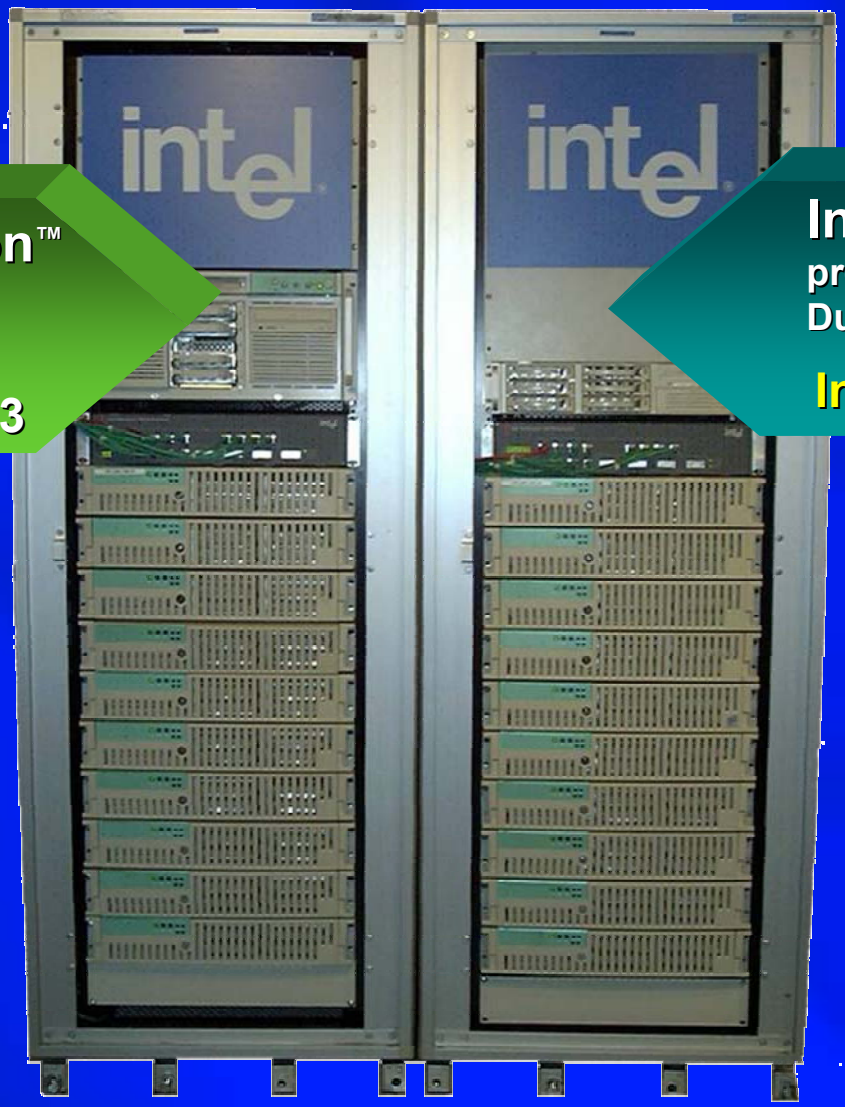

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# Remote Demonstration

**Pentium® III Xeon™**
processor 1. 0GHz
Dual processor

**ServerWorks* LE3**



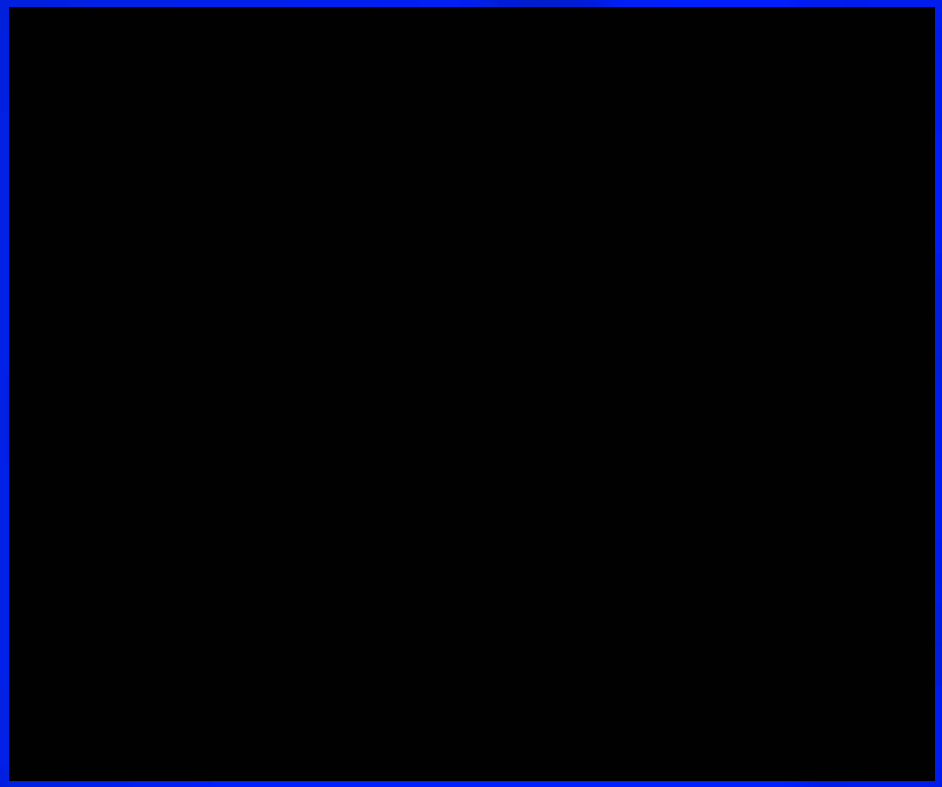

**Intel® Xeon™**
processor 2.2 GHz
Dual Processor

**Intel® E7500**

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# Bringing Intel® Netburst™ Microarchitecture to Servers



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# Bringing Intel® Netburst™ Microarchitecture to Servers




400 MHz System Bus

Increased Memory and I/O Throughput

# Bringing Intel® Netburst™ Microarchitecture to Servers




400 MHz System Bus

Rapid Execution Engine

Increased Memory and I/O Throughput

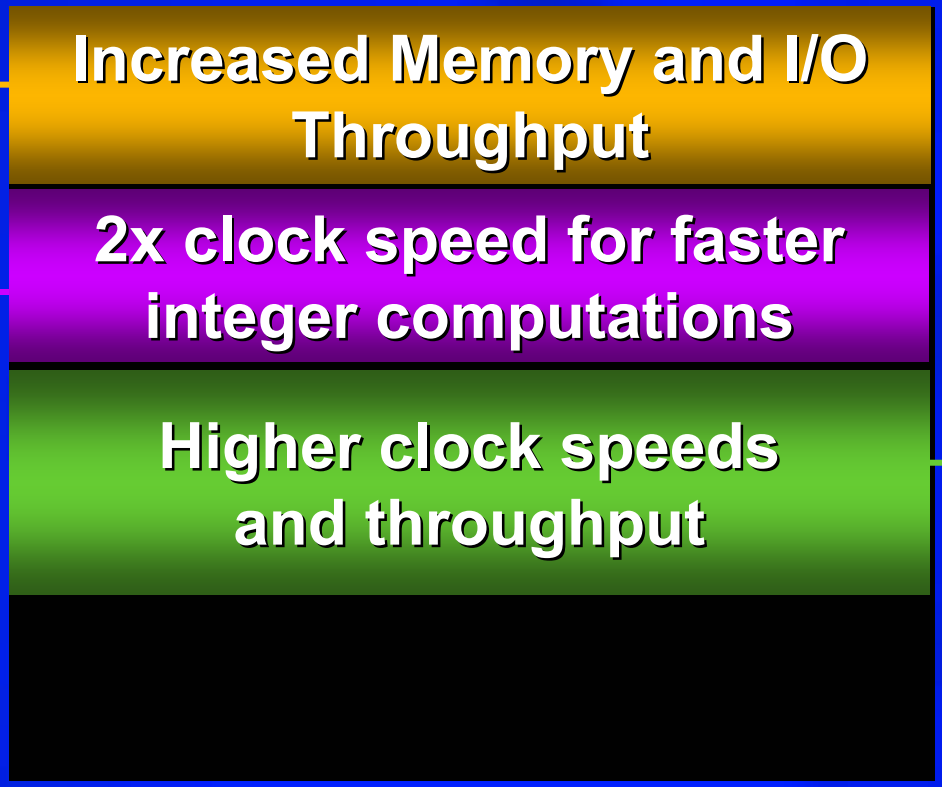
2x clock speed for faster integer computations

# Bringing Intel® Netburst™ Microarchitecture to Servers




400 MHz System Bus

Rapid Execution Engine




Hyper Pipelined Technology

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# Bringing Intel® Netburst™ Microarchitecture to Servers




400 MHz System Bus

Rapid Execution Engine

Increased Memory and I/O Throughput

2x clock speed for faster integer computations

Higher clock speeds and throughput

New instructions

Hyper Pipelined Technology

Streaming SIMD Extensions 2

# Introducing Intel® Hyper-Threading Technology




Industry first

One processor acts like two

Compelling IT Benefits

# Introducing Intel® Hyper-Threading Technology

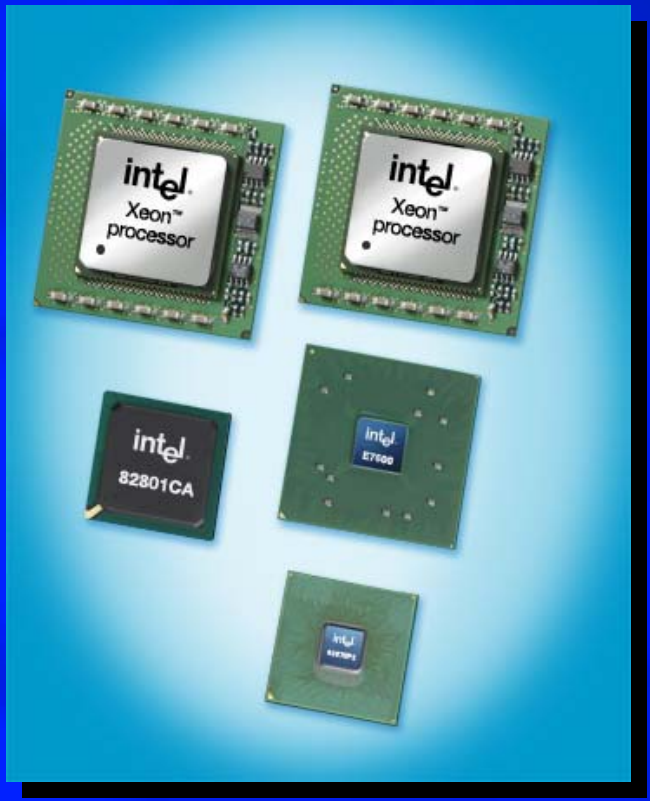


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# Introducing the Intel® E7500 Chipset

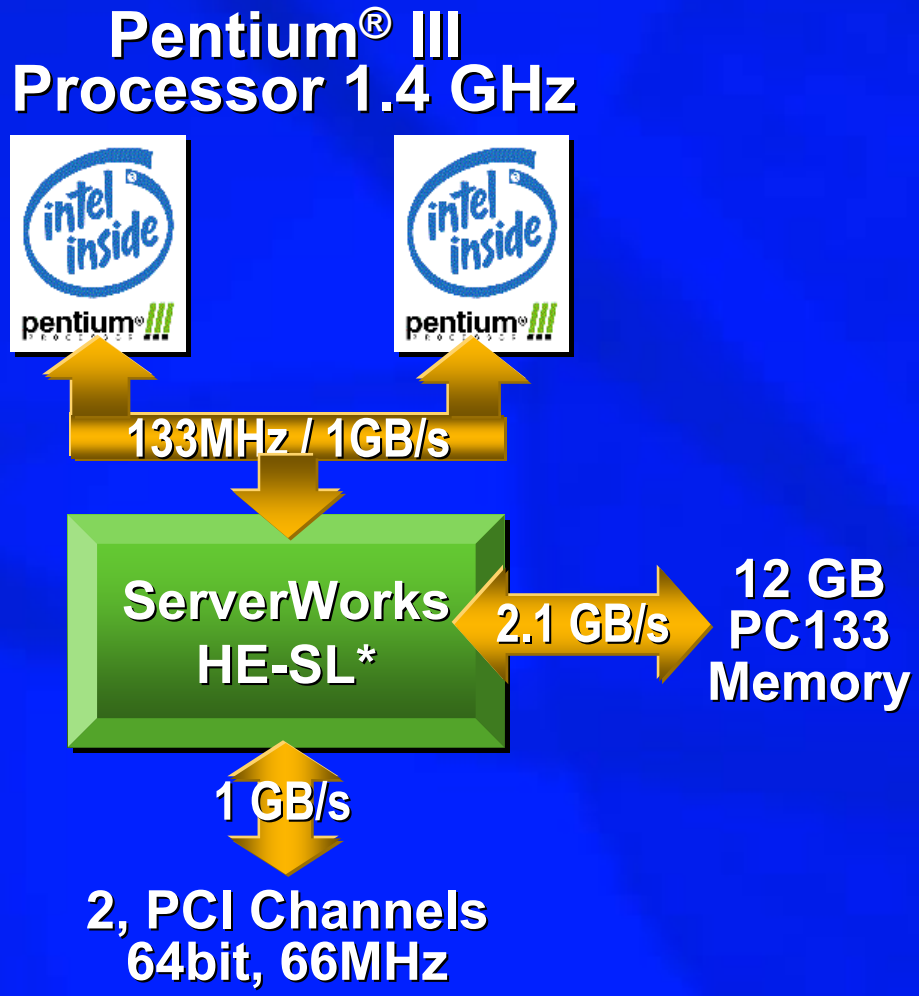
- Xeon™ processor optimized
- Balanced performance
- Scalable memory & I/O
- Rich RAS:  ECC & hot plug
- Next generation PCI: PCI-X



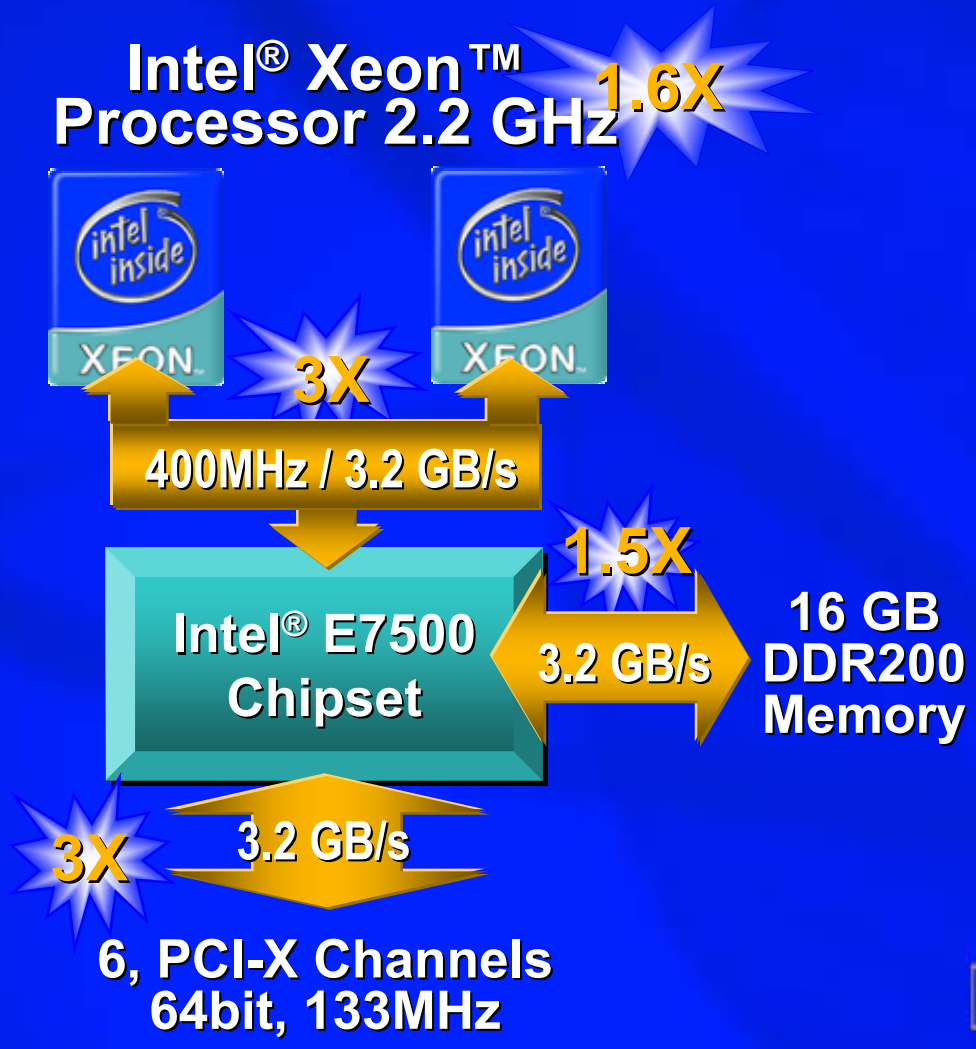

*First in a Family of Volume Server Chipsets from Intel*

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# Advancing the Entire Platform



# Advancing the Entire Platform

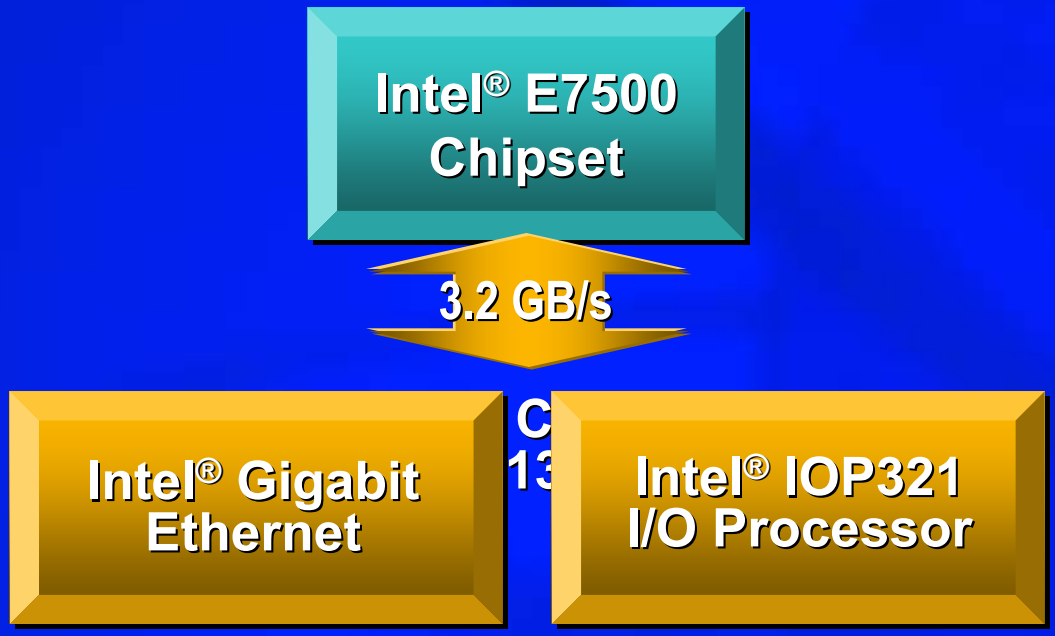


# Advancing the Entire Platform




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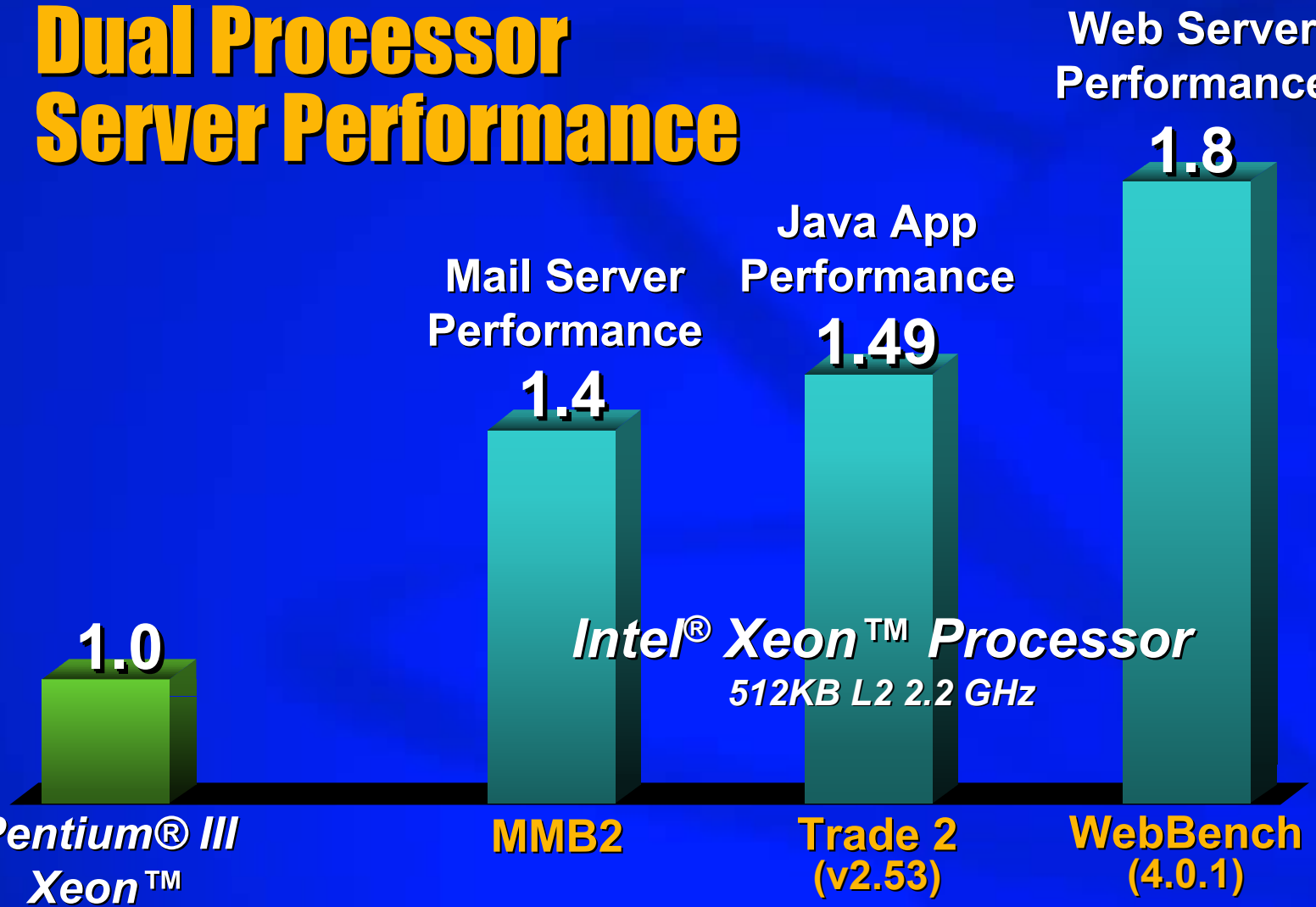
# Advancing the Entire Platform




*Balanced Platform with High Performance Processors, Chipsets, and I/O*

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# Dual Processor Server Performance




SuperMicro* SuperServer 6022P-6
Intel® E7500 Chipset, 2GB memory
Windows* 2000 Advanced Server, SP2

Source: eTesting Labs (Jan,'02)

Performance tests and ratings are measured using specific computer systems and/or components and reflect the approximate performance of Intel products as measured by those tests. Any difference in system hardware or software design or configuration may affect actual performance. Buyers should consult other sources of information to evaluate the performance of systems or components they are considering purchasing. For more information on performance tests and on the performance of Intel products, reference www.intel.com/procs/perf/limits.htm or call (U.S.) 1-800-628-8686 or 1-916-356-3104

Process

0.18 µm

# Itanium™ Processor

2001

Itanium™ Processor

- 19 OEMs shipping systems (2P-16P)
- 7 Operating Systems available now
- 100+ apps in production today
- 400+ apps in development




*Broadest system & OS support for any 64-bit platform*

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# McKinley

Process

0.18 µm

| 2001 | 2002 |
| --- | --- |
| Itanium™ Processor | McKinley |

- On track for release in mid-2002
- Compatible with Itanium™ processor software
- Estimated to deliver ~1.5-2X performance increase over Itanium-based systems

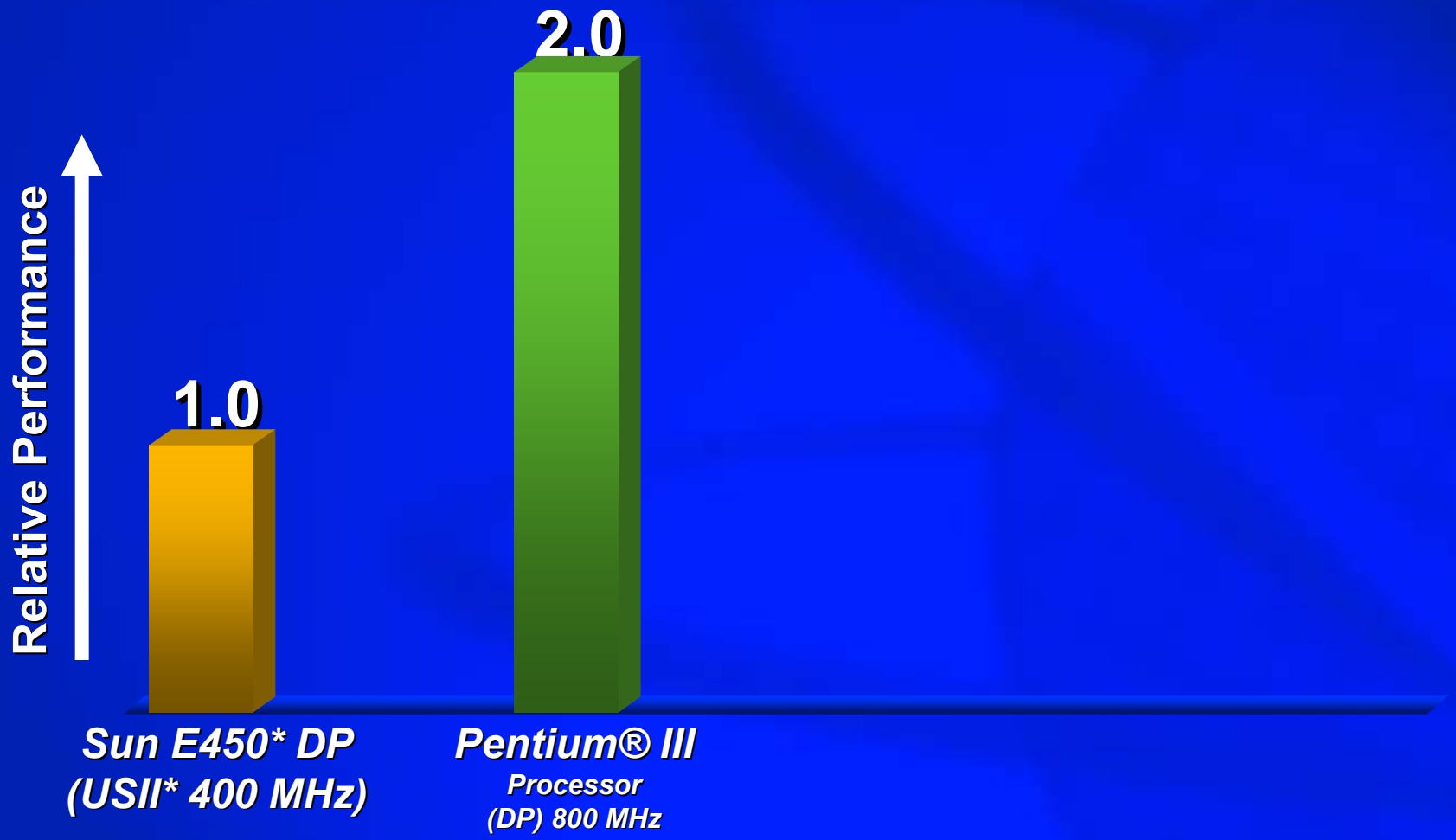


*McKinley builds on and extends Itanium architecture*

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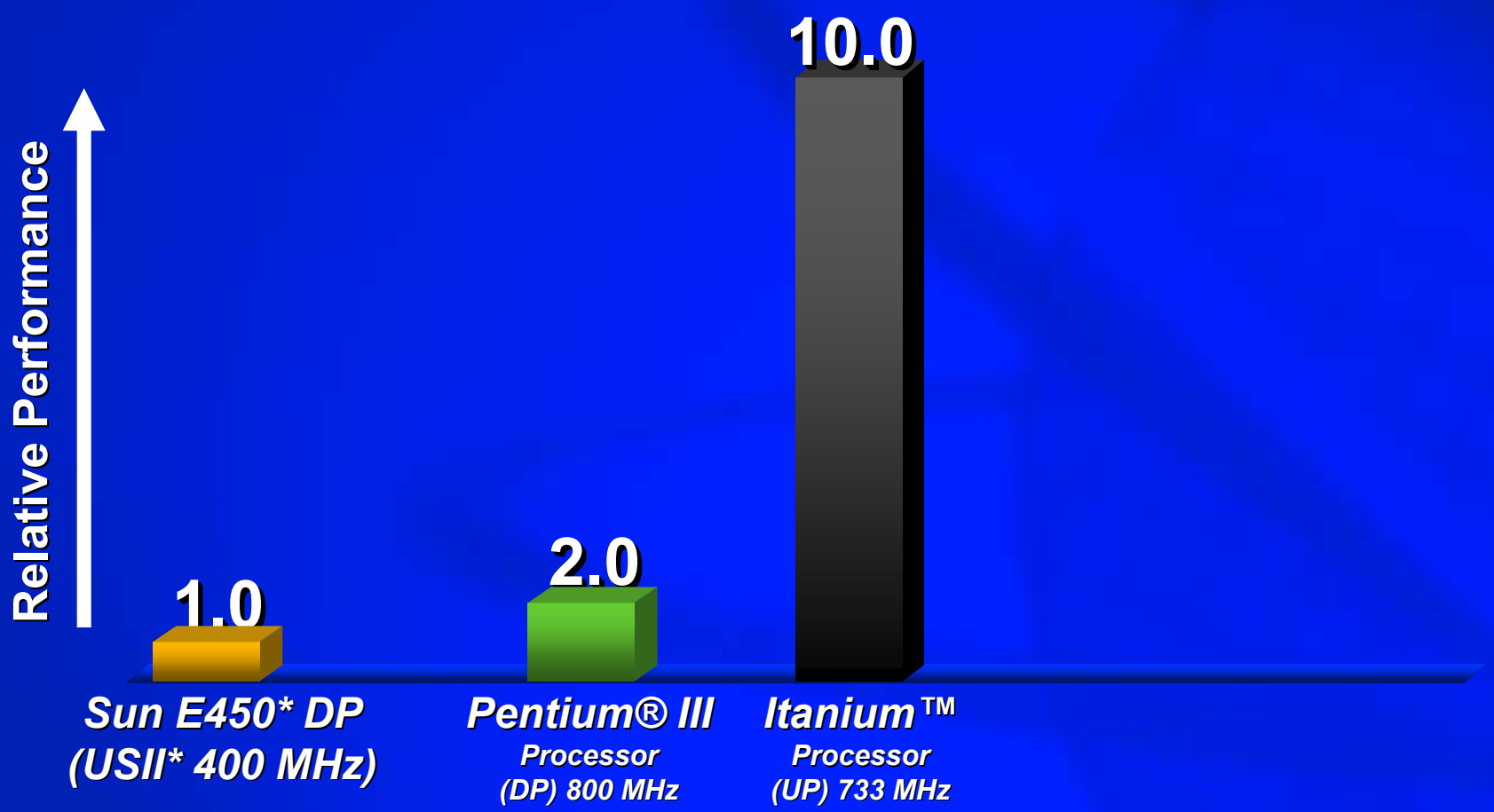
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# Example: Financial Services



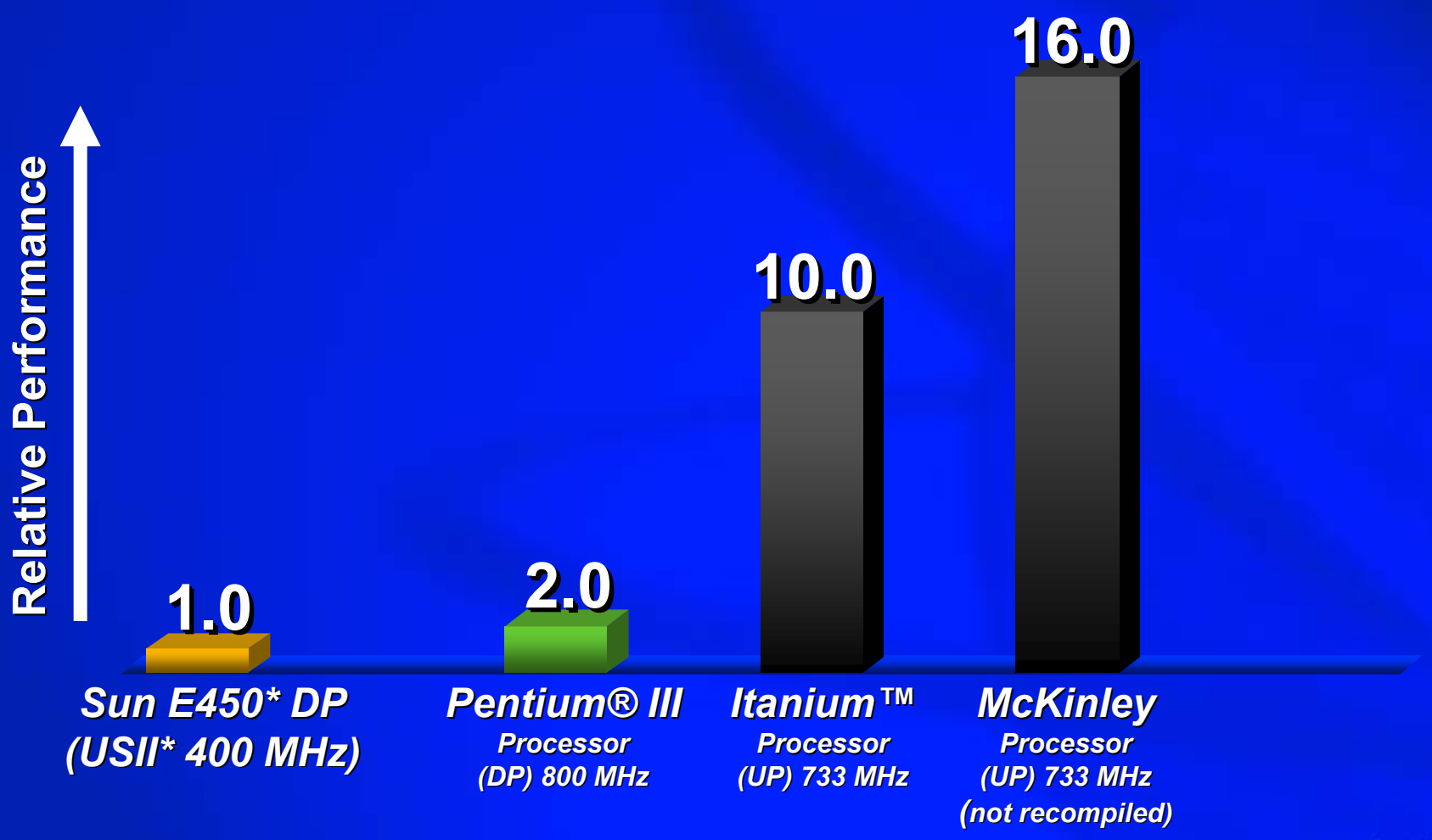

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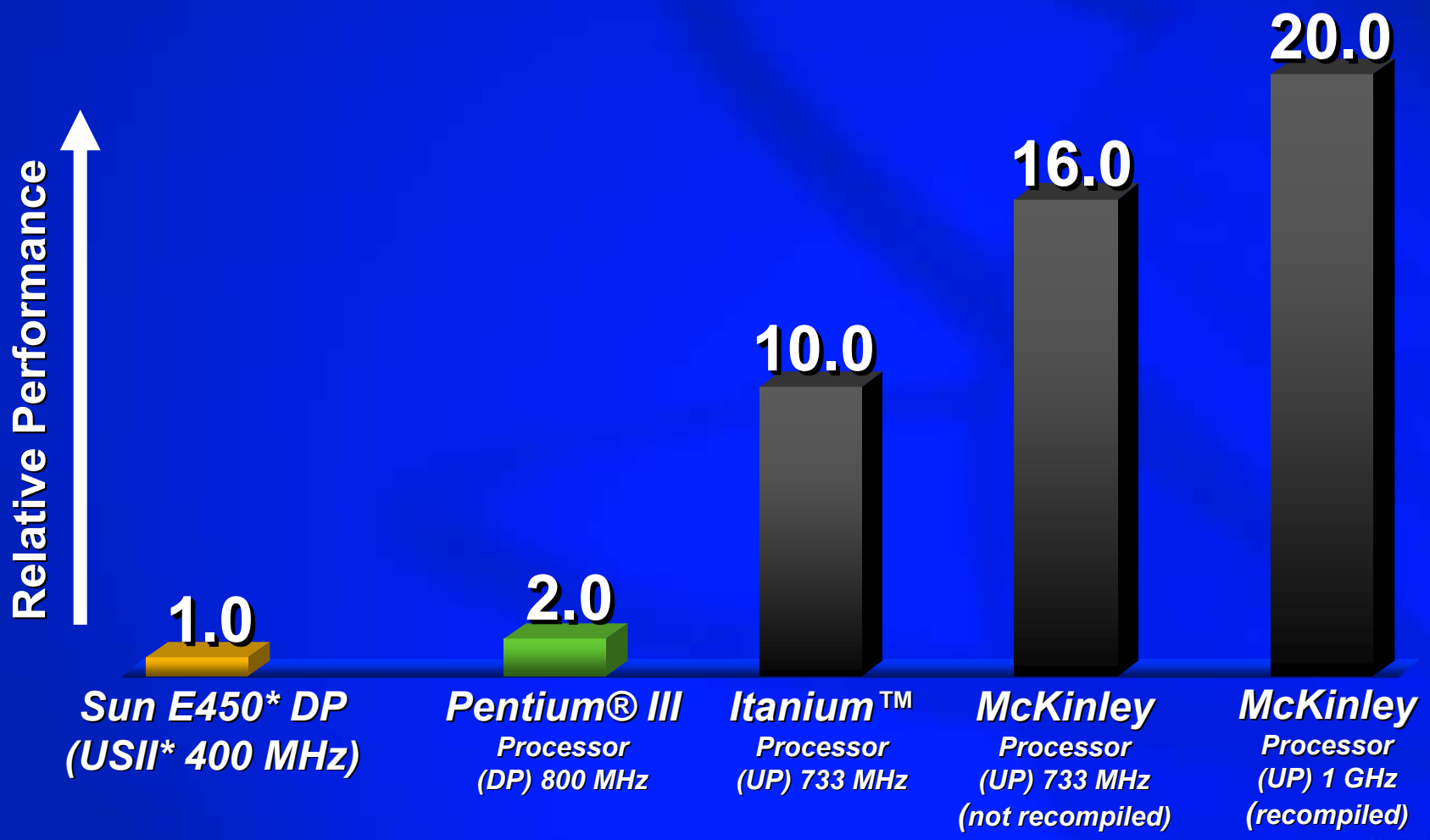

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# Jim Pertzborn

Vice President
Advanced Server Development
IBM Corporation






# Future Processors




- Madison
  - Up to 6MB on-die L3 and "pin compatible" with McKinley
- Deerfield is DP-focused
- Montecito further increases performance
  - Platform and SW compatible with Madison and McKinley

*Intel Continues Itanium™ Processor Family Investment*

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# Summary

- Computing is converging on IA
  - Enterprise and Telecom
- Intel delivering innovative IA-32 server building blocks
- Momentum increasing for Itanium™ architecture


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